

**PATENT
APPLICATION NO 10/673,234**

CLAIMS

Please replace the previously submitted claims with the following:

1-20. (Deleted)

21. (Currently Amended) A system for automated temperature measurement, comprising:

- a processor unit;
- a temperature measurement diode;
- an integrated circuit coupled to the diode and the processor unit, said integrated circuit comprising an analog-to-digital converter configured to sequentially digitize analog voltage signals provided by the diode; and
- a current source coupled to the diode and configured to generate a first current and a second current different from said first current; wherein

said processor unit is coupled to the current source and to the analog-to-digital converter, said processor unit configured

- to control the current source such that the current source applies the first current to the diode at a first point in time and applies the second current to the diode at a second point in time,
- to obtain a digital measure of a first voltage across the diode from the analog-to-digital converter when the first current is applied to the diode,
- to obtain a digital measure of a second voltage across the diode from the analog-to-digital converter when the second current is applied to the diode, and
- to determine a temperature proximate to the diode based on the first and second digital measures and no other measures.

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22. (Previously presented) The system of claim 21, further comprising
a controller configured to host said processor unit.

23. (Currently Amended) The system claim of 21, further comprising:
~~a binary~~ wherein the processor is configured to generate and output a binary signal
corresponding to the determined temperature.

24. (Previously Presented) The system of claim 22, further comprising:
an I/O module external to the controller and configured to couple the controller to the
A/D converter and to the current source.

25. (Currently Amended) The system of claim 24, wherein
~~the a~~ a second processor unit is contained within the I/O module.

26. (Previously presented) The system of claim 21, further comprising:
a temperature unit configured to host the diode, the A/D converter, and the current
source.

27. (Previously Presented) The system of claim 22, further comprising:
an I/O module external to the controller and configured to host the A/D converter and the
current source.

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28. (Currently Amended) A method for automated temperature measurement in a system, comprising:

controlling a current source such that the current source sequentially applies a first current to a diode at a first point in time and applies a second current to a diode at a second point in time;

measuring a first analog voltage across the diode when the first current is applied to the diode to produce a first analog voltage measurement;

measuring a second analog voltage across the diode when the second current is applied to the diode to produce a second analog voltage measurement;

sequentially digitizing the first and second analog voltage measurements in an integrated circuit comprising an analog-to-digital converter; and

determining a temperature proximate the diode based on the first and second digitized voltage measurements and no other measurements.

29. (Currently Amended) A system for automated temperature measurement, comprising:

a temperature measurement diode;

a processor unit;

a current source;

means for controlling the current source such that the current source sequentially applies a first current to the diode at a first point in time and applies a second current to the diode at a second point in time, said means for controlling the current source being coupled to the controller processor unit and the current source;

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means for measuring a first analog voltage across the diode when the first current is applied to the diode and for measuring a second analog voltage across the diode when the second current is applied to the diode;

means for sequentially digitizing the first and second analog voltage measurements with an integrated circuit; and

means for determining and storing a temperature proximate the diode based on the first and second digitized voltage measurements and no other measurements, ~~wherein the temperature is stored in the processor unit.~~

30. (Currently Amended) The system of claim 29, further comprising: means for producing a binary digital output corresponding to the determined temperature.

31. (Previously presented) The system of claim 29, further comprising:
a controller configured to host the processor unit, the means for controlling the current source, and the means for determining a temperature.

32. (Currently amended) The system of claim ~~29~~31, further comprising:
an I/O module external to the controller and configured to couple the controller to the current source.

33. (Previously Presented) The system of claim 32, wherein
the I/O module is configured to host the means for determining the temperature.